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Response to FOA of 04/07/05

### Remarks

In the present response, four claims (4, 12, 17, and 20) are amended. Claims 1-29 are presented for examination. Applicants believe that no new matter is entered.

#### I. Amendments to Claims After Final OA

The Examiner indicates that claims 4-7, 12-15, and 20-23 would be allowable if written in independent form. Claims 4, 12, and 20 are amended to be in independent form. Thus, claims 4-7, 12-15, and 20-23 are now in condition for allowance. Applicants thank the Examiner for indicating that these claims would be allowed.

Claim 17 is amended to correct a typographical error. Claim 17 did not previously end with a period. Applicants respectfully ask the Examiner to enter this amendment.

#### II. Claim Rejections: 35 USC § 112, First Paragraph

Claims 1, 9, and 17 are rejected under 35 USC § 112, first paragraph, as failing to comply with the written description requirement. The Office Action alleges that claims 1, 9, and 17 contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors had possession of the claimed invention. Applicants respectfully traverse.

Applicants amended claims 1, 9, and 17 as follows:

encoding the respective row as an identifier for the identified reference row, if any, a set of deletes representing page identifiers that identify pages in the identified reference row not in the respective row, and a set of adds representing page identifiers that identify pages in the respective row not in the identified reference row.

First, Applicants contend that the amendments comply with 35 USC § 112, first paragraph. One skilled in the relevant art will appreciate that a page identifier "identifies a page." For at least this reason, Applicants respectfully ask the Office Action to withdraw this rejection.

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Second, Applicants contend that specification clearly supports the amendments. Applicants reproduce exemplary portions of page 6 of the originally filed specification (emphasis added by Applicants):

**Each page is identified by a page ID. In a preferred embodiment, the page ID's are positive integers densely allocated starting at zero. The page ID of a page is the same as its row index in the link information database.** For each page A, we store the set of ID's of pages for which page A contains outbound links. We call this set the "row" for page A. The row is stored in sorted order (sorted by ID), with duplicates removed (i.e., if page A contains multiple links to a particular page, the page ID of that page is included only once in the row for page A).

The reference-row compression encodes a given row relative to a reference row. For each row A, we select a reference row  $\text{ref}(A)$  against which we encode row A. Instead of encoding row A directly, we store for row A a pointer to  $\text{ref}(A)$ , a list of "deletes", and of "adds". As shown in FIG. 5, each row 194 of the link information database 160 or 162 includes a reference 200 to a reference row, a list of deletes 202, and a list of adds 204. **The deletes and adds represent the operations required to change the reference row into A's row. Each delete is an index into the reference row of an ID which is not in A's row, and each add is an ID which is in A's row but not in the reference row.** During decompression, to obtain row A, we first obtain the reference row  $\text{ref}(A)$  for A, remove the ID's from  $\text{ref}(A)$  specified by the deletes, and then add the ID's specified by the adds.

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The specification and drawings clearly provide support for the claim amendments at least at the portions reproduced above. For at least this reason, Applicants respectfully ask the Office Action to withdraw this rejection.

### III. Claim Rejections: 35 USC § 103

Claims 1, 3, 8, 9, 11, 16, 17, 19, and 24 are rejected under 35 USC § 103(a) as being unpatentable over USPN 6,073,135 (hereafter Broder). Applicants respectfully traverse.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art cited must teach or suggest all the claim limitations. *See* M.P.E.P. § 2143. Applicants assert that the rejection does not satisfy these criteria.

Independent claims 1, 9, and 17 recite numerous limitations that are not taught or suggested in Broder. By way of example, claims 1, 9, and 17 recite (emphasis added):

encoding the respective row as an identifier for the identified reference row, if any, a set of deletes representing page identifiers that identify pages in the identified reference row not in the respective row, and a set of adds representing page identifiers that identify pages in the respective row not in the identified reference row.

In the first Office Action, the Examiner makes the following admission (see OA of 10/05/2004, p. 3):

Broder does not explicitly teach the step of encoding the respective row as an identifier for the identified reference row, if any, a set of deletes representing page identifiers in the identified reference row not in the respective row, and a set of adds

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representing page identifiers in the respective row not in the identified reference row.

Applicants agree with this admission. Broder does not teach the noted claim elements. The Final Office Action cites several locations of Broder to cure this deficiency. Applicants respectfully disagree. Figure 3 of Broder is reproduced below:

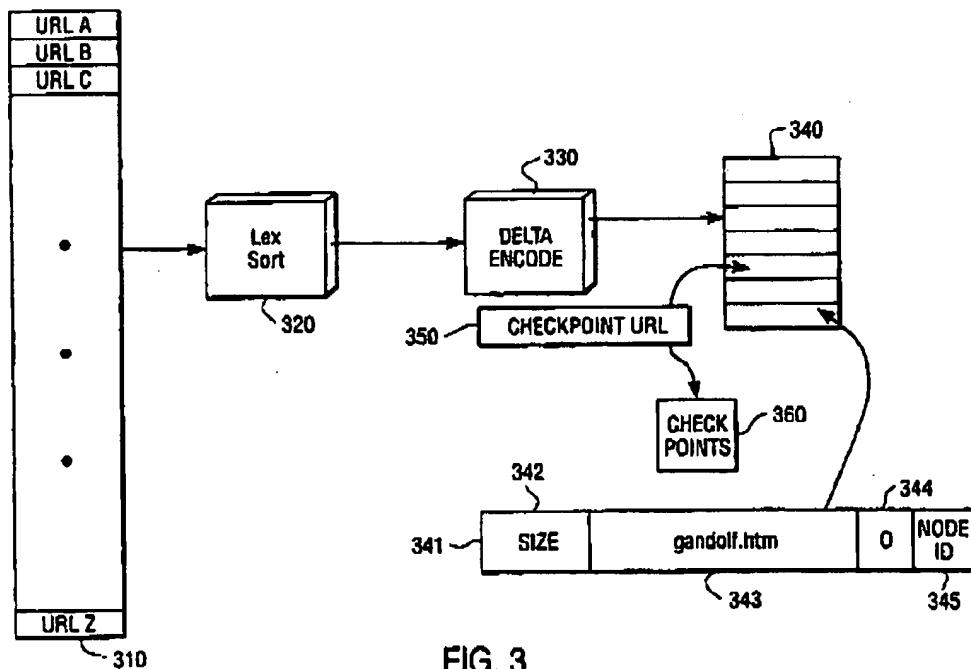


FIG. 3

Broder teaches that the URLs are encoded to produce a list 340. "In the list 340, each entry 341 is stored as a difference (delta) between the current URL and a previous URL" (col. 3, lines 60-63). The specification of Broder specifically states the content of each entry of this list:

More precisely, each entry 341 of the list 340 includes the following fields: a size field 342 that indicates the number of common bytes with the previous URL; a delta field 343 that stores the bytes that are different than the shared prefix, terminated by a

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zero byte 344; finally, a field (Node ID) 345 identifies the node that represents the corresponding page. (Col. 4, lines 13-18).

Thus, Broder teaches that each entry includes (1) size field, (2) delta field, and (3) node ID. Nowhere does Broder teach or suggest encoding the respective row as a set of deletes representing page identifiers that identify pages in the identified reference row not in the respective row, and as a set of adds representing page identifiers that identify pages in the respective row not in the identified reference row.

Applicants respectfully contend that other portions of Broder do not teach or suggest the noted claims elements. Figure 5 of Broder is reproduced below:

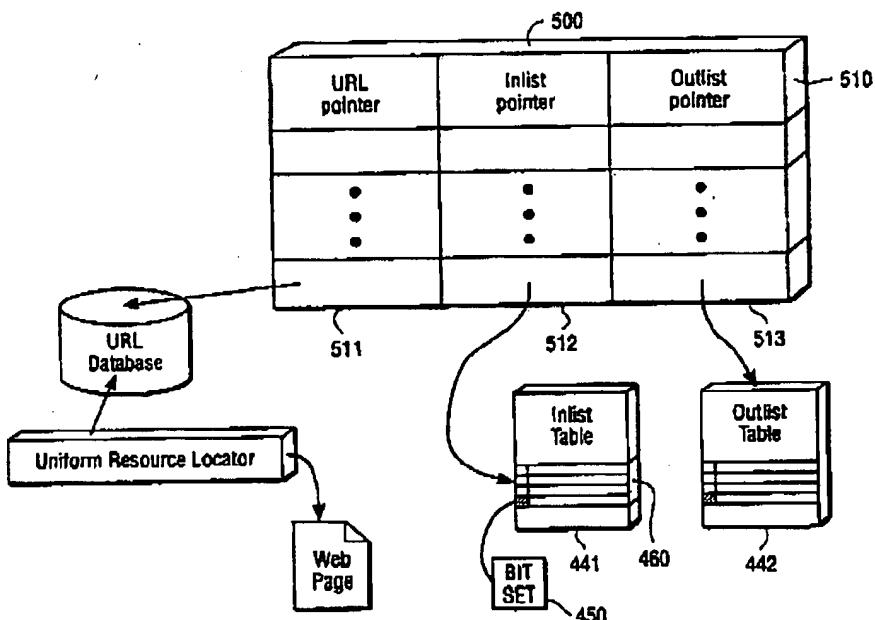


FIG. 5

Broder teaches that the nodes are represented by elements 510 of the array 500 (col. 4, lines 57-58). The specification of Broder specifically states:

Each element 510 includes three fields 511 - 513. Field 511 stores a pointer (URL pointer) to the delta-encoded list 340 of FIG. 3.

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Fields 512 and 513 point to the corresponding inlist 441 and outlist 442. In other words, field 511 points to the node name, field 512 points to the incoming edges, and field 513 points to the outgoing edges. (Col. 4, lines 59-65).

Thus, each element 510 includes (1) URL pointer 511, (2) inlist pointer 441, and (3) outlist pointer 442. Nowhere does Broder teach or suggest encoding the respective row as a set of deletes representing page identifiers that identify pages in the identified reference row not in the respective row, and as a set of adds representing page identifiers that identify pages in the respective row not in the identified reference row.

For at least these reasons, claims 1, 9, and 17 allowable over Broder. Dependent claims inherit the limitations of the basic claim. Thus, for at least the reasons given in connection with claims 1, 9, and 17, all dependent claims are also allowable.

#### IV. Claim Rejections: 35 USC § 103

Claims 2, 10, and 18 are rejected under 35 USC § 103(a) as being unpatentable over Broder in view of Shay "Understanding Data Communication & Networks" (hereafter Shay). Applicants respectfully traverse.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art cited must teach or suggest all the claim limitations. *See M.P.E.P. § 2143.* Applicants assert that the rejection does not satisfy these criteria.

As noted in Section III above, Broder fails to teach or suggest all of the recitations of independent claims 1, 9, and 17. Shay fails to cure the noted deficiencies of Broder. Thus, for at least the reasons given in connection with Section III above, claims 2, 10, and 18 are allowable over Broder in view of Shay.

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#### V. Allowable Subject Matter

Applicants sincerely thank the Examiner for allowing claims 4-7, 12-15, and 20-23 if rewritten as indicated in the Office Action. These claims are now in independent form.

Applicants also sincerely thank the Examiner for allowing claims 25-29.

#### CONCLUSION

In view of the above, Applicants believe all pending claims are in condition for allowance. Allowance of these claims is respectfully requested.

Any inquiry regarding this Amendment and Response should be directed to Philip S. Lyren at Telephone No. (281) 514-8236, Facsimile No. (281) 514-8332. In addition, all correspondence should continue to be directed to the following address:

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Respectfully submitted,



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**CERTIFICATE UNDER 37 C.F.R. 1.8**  
The undersigned hereby certifies that this paper or papers, as described herein, is being transmitted to the United States Patent and Trademark Office facsimile number 703-872-9306 on this 6th day of June, 2005.

By Be Henry  
Name: Be Henry